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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,644	07/28/2003	Tomotoshi Kanatsu	00862.023150.	3600

5514 7590 03/06/2007

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EXAMINER	
LIEW, ALEX KOK SOON	
ART UNIT	**PAPER NUMBER**
2624	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/627,644	KANATSU ET AL.	
	Examiner	Art Unit	
	Alex Liew	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 July 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *4,16 and 23* is/are allowed.

6)☒ Claim(s) *1-3,5-15,17-22 and 24-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. The amendment filed on 2/1/07 is entered and made of record.

2. The examiner withdraws USC 112 rejection in response to the applicant's amendment to claims 6 and 7.

Response to Applicant's arguments

On page 12, the applicant states: {... it appears that the Examiner understands that each tile corresponds to one pixel. Such an understanding is incorrect, however, because each tile in a tile image, according to Applicants' invention, is generated based on "a predetermined sized area" in a binary image and comprises a plurality of pixels} then the applicant points out page 28 lines 12 – 17 of the applicant's specification. The examiner does not agree with the applicant. The applicant relies on "a predetermined sized area" in an image to define a tile of the current invention. A pixel alone is a 1 by 1 area defined in an image, so a pixel does read on the tile definition disclosed by the specification. In addition, the applicant mentions this tile comprises a plurality of pixels, however, this tile having a plurality of pixels is not included in any of the limitations of claims 1, 13 and 20.

Allowable Claims

Claims 4, 16 and 23 are allowable.

With regards to claim 4, the examiner cannot find any applicable prior art and / or suggestions disclosing determination step of determining whether or not said character

area is an inverted image based on the binary image of said image in combination with the rest of the limitations of claim 4.

With regards to claim 16, see the rationale for claim 4.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1 – 3, 6 – 8, 13 – 15, 20 – 22 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (US pat no 4,903,312) in view of Donelly (US pat no 6,011,866).

With regards to claim 1, Sato discloses an image processing method for detecting a direction of an image including a character area, inputted into a computer, said method comprising:

a binary image generation step of generating a binary image of said input image based on a result of a differential processing of the input image (see fig 2 – 11 showing an input device, col. 5 lines 4 – 8 with fig 3 – shows a binary letter 'B', the differential processing is a binarization of an image, described in the applicant's specification, page

27 lines 9 – 17 – the process of binarization in Sato are processed in the scanner when image is being scanned in and then converted to binary image),

a tile image generation step of generating a tile image that comprises a plurality of tiles, wherein a value of each tile in the tile image is generated based on a predetermined size area in said binary image (see col. 5 lines 24 – 28 and fig 3 – each tile corresponds to each pixel "$" as black pixel and " " as white pixel, the size of the tile is 1 by 1),

a character area extraction step of extracting an area in said binary image, corresponding to an area in a circumscribed rectangle surrounding connected pixels having the same value in said tile image, as a character area (see col. 6 lines 27 – 36 and fig 3 the extracted binary image area of the character is rectangular shape). Sato teaches matching step where a distance calculation between histogram data of one of the registered character in library is calculated (see col. 6 lines 55 – 65). But fails to disclose a direction detection step as discussed on page 3 lines 15 – 19 of the applicant.

Donelly discloses a direction detection step of recognizing a direction of characters included in said character area and thereby detecting the direction of said image (see col. 5 lines 11 – 25 and fig 7A – D – the direction detection step compares bank note bill to template at all direction, the template that matches best with the template at of the direction is the match). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to include direction detection step because to

detect the character at all possible orientations and directions to find the best match for each character and reducing error in recognition.

With regards to claim 2, Sato discloses an image processing method according to claim 1, wherein at said binary image generation step, the binary image is generated with image area flags having a value 1 corresponding to a pixel of the differential processed image equal to or greater than a predetermined value or a value 0 corresponding to a pixel of the differential processed image less than the predetermined value, and at said tile image generation step, the tile image is generated with a tile having a value 1 where the number of image area flags having the value 1 is equal to or greater than a predetermined threshold value, and a tile having a value 0 where the number of image area flags having the value 1 is less than the predetermined threshold value (it is inherent to convert an image to a binary image by using a threshold value determining each of the pixel whether it is to be zero or one).

With regards to claim 3, Sato discloses all of the claim elements / features as discussed above in rejection for claim 1 and incorporated herein by reference, and an image processing method according to claim 1, further comprising a character extraction step of extracting the respective characters included in said character area extracted at said character area extraction step (see fig 2 – 12), but fails to disclose character recognition step of recognition a direction of said characters. Donelly discloses direction detection step, the direction of said character area is detected based on the result of recognition

of the direction of said characters included in said character area (see col. 5 lines 11 – 25 and col. 1 lines 16 – 18). See the motivation for claim 1.

With regards to claim 6, Sato discloses an image processing method according to claim 1, wherein a resolution of said tile image is lower than a resolution of the binary image (in the arguments in claim 1, the tile image is of size 1 by 1, and the binary image contains image of a letter, eg letter 'B', which consists of plurality of pixels, in turn having for details and resolution).

With regards to claim 7, Sato discloses an image processing method according to claim 1, wherein the value of each tile in said tile image is determined based on lines included in the predetermined size area in said binary image (the values of each tile in Sato is either white or black, see fig 4 – the first two lines are all white, but on the third there are a mix of white and black pixels).

With regards to claim 8, Sato discloses an image processing method according to claim 1, wherein at said character area detection step, an area in said image, corresponding to the connected tiled extracted from said tile image is extracted as a character area (see fig 3 or fig 4 is the character image area – the letter 'B' is extracted).

With regards to claims 13 and 20, see the rationale and rejection for claim 1.

With regards to claims 14 and 21, see the rationale and rejection for claim 2.

With regards to claims 15 and 22, see the rationale and rejection for claim 3.

With regards to claim 27, Sato discloses computer-readable storage medium holding the program according to claim 20 (the flow charts described in must be perform in a computer environment requiring computer program stored in storage medium).

3. Claims 5, 9 – 11, 17, 18, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato ('312) in view of Donelly ('866) as applied to claim 2 further in view of Matsuda (US pat no 6,014,470).

With regards to claim 5, Sato discloses all of the claim elements / features as discussed above in rejection for claim 1 and incorporated herein by reference and character area extraction step (see fig 2 – 12) plural tile images are compared with each other and character area included in said image is extracted (see fig 2 – 16 with 2 – 17 – the image consist of pixels which make up the character image, each pixel is read as tile – after the character is extraction it is identified using library to compare library characters to extracted character using histogram methods, see col. 6 lines 37 – 54), but fails to disclose using plural different threshold to binaries image. Matsuda discloses image generation step, plural tile images are generated using different threshold values (see col. 3 lines 9 – 22). It would have been obvious to one having ordinary skill in the art at

the time of the invention was made to include using plural different threshold to binaries image because to prevent any errors from occurring when the input image contain light and dark areas, a different threshold is needed in light areas of the image and a different threshold is needed in the darker area of the image, so to improve the quality of the image.

With regards to claim 9, see the rationale and rejection for claim 5.

With regards to claim 10, Sato discloses an image processing method according to claim 9, wherein at said character area extraction step, said character area is extracted by comparing connected tiles extracted from said plural low resolution tile images (see fig 3 as the low resolution image and use to compare to library to identify the character, fig 2 – 16 and 17).

With regards to claim 11, Sato discloses an image processing method according to claim 6, wherein at said character area extraction step, said low resolution tile image is divided into meshes, and said character area is extracted based on distribution of pixels within each mesh area (see col. 6 lines 26 – 41).

With regards to claim 17, see the rationale and rejection for claim 5.

With regards to claim 18, see the rationale and rejection for claim 11.

With regards to claim 24, see the rationale and rejection for claim 5.

With regards to claim 25, see the rationale and rejection for claim 11.

4. Claims 12, 19 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (US pat no 4,903,312) in view of Donelly (US pat no 6,011,866) as applied to claim 11 further in view of Iwayama (US pub no 2004/0161151).

With regards to claim 12, Sato discloses all of the claim elements / features as discussed above in rejection for claim 11 and incorporated herein by reference, but fails to disclose selection output step of selectively outputting a character area. Sato does teach character area determined based on the distribution of pixels within each mesh area (see col. 6 lines 26 – 41). Iwayama discloses an image processing method according to claim 11, wherein said character area extraction step includes a selection output step of selectively outputting a character area extracted using connected pixels extracted from said low resolution tile image (see fig 10 – the area around the candidate character under 'Return' is read as the outputted selected character area). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to include selection output step of selectively outputting a character area because to let to user to enter another image character while he user does not have to finish the current character image, to speed up the character input time.

With regards to claims 19 and 26, see the rationale and rejection for claim 12.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alex Liew whose telephone number is (571)272-8623. The examiner can normally be reached on 9:30AM - 7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (571)272-7695. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alex Liew
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2/22/07

JOSEPH MANCUSO
SUPERVISORY PATENT EXAMINER